

THAT WHICH IS CLAIMED IS:

- 1        1. A method for enhancing vision in an eye, the method comprising:  
2                determining an optical path difference between a plane wave and a  
3                wavefront emanating from an eye;  
4                producing a plurality of laser beam shots;  
5                applying said plurality of laser beam shots to the eye in a manner that is  
6                based in part on the optical path difference between the plane wave and the wavefront  
7                emanating from the eye; and  
8                removing tissue from the cornea of the eye in a manner that reduces the  
9                optical path difference between the plane wave and the wavefront emanating from the  
10              eye; whereby visual defects of the eye are reduced.
  
- 1        2. The method of claim 1 in which the size of a laser beam shot is less than  
2              about 1 mm.
  
- 1        3. The method of claim 1 in which the size of a laser beam shot is less than  
2              about 0.5 mm.
  
- 1        4. The method of claim 1 in which the size of the laser beam shots varies.
  
- 1        5. The method of claim 1 in which the vision of the eye is enhanced from an  
2              eye requiring a correction of greater than -3 diopters to an eye having perfect vision.
  
- 1        6. The method of claim 1 in which the vision of the eye is enhanced from an  
2              eye requiring a correction of greater than -3 diopters to an eye having about 20/20  
3              vision.

1           **7.**     The method of claim 1 in which the vision of the eye is enhanced from an  
2     eye requiring a correction of greater than -3 diopters to an eye having better than 20/20  
3     vision.

1           **8.**     The method of claim 1 in which the vision of the eye is enhanced from an  
2     eye requiring a correction of greater than -3 diopters to an eye having at least 20/10  
3     vision.

1           **9.**     The method of claim 1 in which the vision of the eye is enhanced from an  
2     eye requiring a correction of greater than -6 diopters to an eye having perfect vision.

1           **10.**    The method of claim 1 in which the vision of the eye is enhanced from an  
2     eye requiring a correction of greater than -6 diopters to an eye having about 20/20  
3     vision.

1           **11.**    The method of claim 1 in which the vision of the eye is enhanced from an  
2     eye requiring a correction of greater than -6 diopters to an eye having better than 20/20  
3     vision.

1           **12.**    The method of claim 1 in which the vision of the eye is enhanced from an  
2     eye requiring a correction of greater than -6 diopters to an eye having at least 20/10  
3     vision.

1           **13.**    The method of claim 1 in which the vision of the eye is enhanced from an  
2     eye requiring a correction of greater than -8 diopters to an eye having perfect vision.

1           **14.**    The method of claim 1 in which the vision of the eye is enhanced from an  
2     eye requiring a correction of greater than -8 diopters to an eye having about 20/40  
3     vision.

1           **15.** The method of claim 1 in which the vision of the eye is enhanced from an  
2       eye requiring a correction of greater than -8 diopters to an eye having better than 20/40  
3       vision.

1           **16.** The method of claim 1 in which the vision of the eye is enhanced from an  
2       eye requiring a correction of greater than -8 diopters to an eye having at least 20/20  
3       vision.

1           **17.** The method of claim 1 in which the vision of the eye is enhanced from an  
2       eye requiring a correction of greater than 3 diopters to an eye having perfect vision.

1           **18.** The method of claim 1 in which the vision of the eye is enhanced from an  
2       eye requiring a correction of greater than 3 diopters to an eye having about 20/20  
3       vision.

1           **19.** The method of claim 1 in which the vision of the eye is enhanced from an  
2       eye requiring a correction of greater than 3 diopters to an eye having better than 20/20  
3       vision.

1           **20.** The method of claim 1 in which the vision of the eye is enhanced from an  
2       eye requiring a correction of greater than 3 diopters to an eye having at least 20/10  
3       vision.

1           **21.** The method of claim 1 in which the vision of the eye is enhanced from an  
2       eye requiring a correction of greater than 6 diopters to an eye having perfect vision.

1           **22.** The method of claim 1 in which the vision of the eye is enhanced from an  
2       eye requiring a correction of greater than 6 diopters to an eye having about 20/20  
3       vision.

1           **23.** The method of claim 1 in which the vision of the eye is enhanced from an  
2       eye requiring a correction of greater than 6 diopters to an eye having better than 20/20  
3       vision.

1           **24.** The method of claim 1 in which the vision of the eye is enhanced from an  
2       eye requiring a correction of greater than 6 diopters to an eye having at least 20/10  
3       vision.

1           **25.** The method of claim 1 in which the vision of the eye is enhanced from an  
2       eye requiring a correction of greater than 8 diopters to an eye having perfect vision.

1           **26.** The method of claim 1 in which the vision of the eye is enhanced from an  
2       eye requiring a correction of greater than 8 diopters to an eye having about 20/40  
3       vision.

1           **27.** The method of claim 1 in which the vision of the eye is enhanced from an  
2       eye requiring a correction of greater than 8 diopters to an eye having better than 20/40  
3       vision.

1           **28.** The method of claim 1 in which the vision of the eye is enhanced from an  
2       eye requiring a correction of greater than 8 diopters to an eye having at least 20/20  
3       vision.

1           **29.** A method for enhancing vision in an eye, the method comprising:  
2               determining an optical path difference between a plane wave and a  
3       wavefront emanating from an eye;  
4               producing a plurality of laser beam shots;  
5               mechanically removing the epithelium of the eye to expose bowmans  
6       membrane;

7                   applying said plurality of laser beam shots to the bowmans membrane in a  
8 manner that is based in part on the optical path difference between the plane wave and  
9 the wavefront emanating from the eye; and,

10                  said plurality of laser beam shots removing tissue from the eye in a  
11 manner that reduces the optical path difference between the plane wave and the  
12 wavefront emanating from the eye; whereby the vision of the eye is improved.

1                  **30.**   The method of claim 29 in which the size of a laser beam shot is less than  
2 about 1 mm.

1                  **31.**   The method of claim 29 in which the size of a laser beam shot is less than  
2 about 0.5 mm.

1                  **32.**   The method of claim 29 in which the size of the laser beam shots varies.

1                  **33.**   The method of claim 29 in which the vision of the eye is enhanced from  
2 an eye requiring a correction of greater than -3 diopters to an eye having perfect vision.

1                  **34.**   The method of claim 29 in which the vision of the eye is enhanced from  
2 an eye requiring a correction of greater than -3 diopters to an eye having about 20/20  
3 vision.

1                  **35.**   The method of claim 29 in which the vision of the eye is enhanced from  
2 an eye requiring a correction of greater than -3 diopters to an eye having better than  
3 20/20 vision.

1                  **36.**   The method of claim 29 in which the vision of the eye is enhanced from  
2 an eye requiring a correction of greater than -3 diopters to an eye having at least 20/10  
3 vision.

1           **37.**   The method of claim 29 in which the vision of the eye is enhanced from  
2       an eye requiring a correction of greater than -6 diopters to an eye having perfect vision.

1           **38.**   The method of claim 29 in which the vision of the eye is enhanced from  
2       an eye requiring a correction of greater than -6 diopters to an eye having about 20/20  
3       vision.

1           **39.**   The method of claim 29 in which the vision of the eye is enhanced from  
2       an eye requiring a correction of greater than -6 diopters to an eye having better than  
3       20/20 vision.

1           **40.**   The method of claim 29 in which the vision of the eye is enhanced from  
2       an eye requiring a correction of greater than -6 diopters to an eye having at least 20/10  
3       vision.

1           **41.**   The method of claim 29 in which the vision of the eye is enhanced from  
2       an eye requiring a correction of greater than -8 diopters to an eye having perfect vision.

1           **42.**   The method of claim 29 in which the vision of the eye is enhanced from  
2       an eye requiring a correction of greater than -8 diopters to an eye having about 20/40  
3       vision.

1           **43.**   The method of claim 29 in which the vision of the eye is enhanced from  
2       an eye requiring a correction of greater than -8 diopters to an eye having better than  
3       20/40 vision.

1           **44.**   The method of claim 29 in which the vision of the eye is enhanced from  
2       an eye requiring a correction of greater than -8 diopters to an eye having at least 20/20  
3       vision.

1           **45.**   The method of claim 29 in which the vision of the eye is enhanced from  
2       an eye requiring a correction of greater than 3 diopters to an eye having perfect vision.

1           **46.**   The method of claim 29 in which the vision of the eye is enhanced from  
2       an eye requiring a correction of greater than 3 diopters to an eye having about 20/20  
3       vision.

1           **47.**   The method of claim 29 in which the vision of the eye is enhanced from  
2       an eye requiring a correction of greater than 3 diopters to an eye having better than  
3       20/20 vision.

1           **48.**   The method of claim 29 in which the vision of the eye is enhanced from  
2       an eye requiring a correction of greater than 3 diopters to an eye having at least 20/10  
3       vision.

1           **49.**   The method of claim 29 in which the vision of the eye is enhanced from  
2       an eye requiring a correction of greater than 6 diopters to an eye having perfect vision.

1           **50.**   The method of claim 29 in which the vision of the eye is enhanced from  
2       an eye requiring a correction of greater than 6 diopters to an eye having about 20/20  
3       vision.

1           **51.**   The method of claim 29 in which the vision of the eye is enhanced from  
2       an eye requiring a correction of greater than 6 diopters to an eye having better than  
3       20/20 vision.

1           **52.**   The method of claim 29 in which the vision of the eye is enhanced from  
2       an eye requiring a correction of greater than 6 diopters to an eye having at least 20/10  
3       vision.

1           **53.** The method of claim 29 in which the vision of the eye is enhanced from  
2 an eye requiring a correction of greater than 8 diopters to an eye having perfect vision.

1           **54.** The method of claim 29 in which the vision of the eye is enhanced from  
2 an eye requiring a correction of greater than 8 diopters to an eye having about 20/40  
3 vision.

1           **55.** The method of claim 29 in which the vision of the eye is enhanced from  
2 an eye requiring a correction of greater than 8 diopters to an eye having better than  
3 20/40 vision.

1           **56.** The method of claim 29 in which the vision of the eye is enhanced from  
2 an eye requiring a correction of greater than 8 diopters to an eye having at least 20/20  
3 vision.

1           **57.** A method for enhancing vision in an eye, the method comprising:  
2           determining an optical path difference between a plane wave and a  
3 wavefront emanating from an eye;  
4           producing a plurality of laser beam shots;  
5           displacing a portion of the eye to expose the stroma of the eye;  
6           applying said plurality of laser beam shots to the exposed stroma in a  
7 manner that is based in part on the optical path difference between the plane wave and the  
8 wavefront emanating from the eye;  
9           said plurality of laser beam shots removing tissue from the eye in a  
10 manner that reduces the optical path difference between the plane wave and the  
11 wavefront emanating from the eye; and,  
12           replacing the displaced portion of the eye; whereby the vision of the eye is  
13 improved.

1           **58.**   The method of claim 57 in which the size of a laser beam shot is less than  
2       about 1 mm.

1           **59.**   The method of claim 57 in which the size of a laser beam shot is less than  
2       about 0.5 mm.

1           **60.**   The method of claim 57 in which the size of the laser beam shots varies.

1           **61.**   The method of claim 57 in which the vision of the eye is enhanced from  
2       an eye requiring a correction of greater than -3 diopters to an eye having perfect vision.

1           **62.**   The method of claim 57 in which the vision of the eye is enhanced from  
2       an eye requiring a correction of greater than -3 diopters to an eye having about 20/20  
3       vision.

1           **63.**   The method of claim 57 in which the vision of the eye is enhanced from  
2       an eye requiring a correction of greater than -3 diopters to an eye having better than  
3       20/20 vision.

1           **64.**   The method of claim 57 in which the vision of the eye is enhanced from  
2       an eye requiring a correction of greater than -3 diopters to an eye having at least 20/10  
3       vision.

1           **65.**   The method of claim 57 in which the vision of the eye is enhanced from  
2       an eye requiring a correction of greater than -6 diopters to an eye having perfect vision.

1           **66.**   The method of claim 57 in which the vision of the eye is enhanced from  
2       an eye requiring a correction of greater than -6 diopters to an eye having about 20/20  
3       vision.

1           **67.** The method of claim 57 in which the vision of the eye is enhanced from  
2       an eye requiring a correction of greater than -6 diopters to an eye having better than  
3       20/20 vision.

1           **68.** The method of claim 57 in which the vision of the eye is enhanced from  
2       an eye requiring a correction of greater than -6 diopters to an eye having at least 20/10  
3       vision.

1           **69.** The method of claim 57 in which the vision of the eye is enhanced from  
2       an eye requiring a correction of greater than -8 diopters to an eye having perfect vision.

1           **70.** The method of claim 57 in which the vision of the eye is enhanced from  
2       an eye requiring a correction of greater than -8 diopters to an eye having about 20/40  
3       vision.

1           **71.** The method of claim 57 in which the vision of the eye is enhanced from  
2       an eye requiring a correction of greater than -8 diopters to an eye having better than  
3       20/40 vision.

1           **72.** The method of claim 57 in which the vision of the eye is enhanced from  
2       an eye requiring a correction of greater than -8 diopters to an eye having at least 20/20  
3       vision.

1           **73.** The method of claim 57 in which the vision of the eye is enhanced from  
2       an eye requiring a correction of greater than 3 diopters to an eye having perfect vision.

1           **74.** The method of claim 57 in which the vision of the eye is enhanced from  
2       an eye requiring a correction of greater than 3 diopters to an eye having about 20/20  
3       vision.

1           **75.** The method of claim 57 in which the vision of the eye is enhanced from  
2 an eye requiring a correction of greater than 3 diopters to an eye having better than  
3 20/20 vision.

1           **76.** The method of claim 57 in which the vision of the eye is enhanced from  
2 an eye requiring a correction of greater than 3 diopters to an eye having at least 20/10  
3 vision.

1           **77.** The method of claim 57 in which the vision of the eye is enhanced from  
2 an eye requiring a correction of greater than 6 diopters to an eye having perfect vision.

1           **78.** The method of claim 57 in which the vision of the eye is enhanced from  
2 an eye requiring a correction of greater than 6 diopters to an eye having about 20/20  
3 vision.

1           **79.** The method of claim 57 in which the vision of the eye is enhanced from  
2 an eye requiring a correction of greater than 6 diopters to an eye having better than  
3 20/20 vision.

1           **80.** The method of claim 57 in which the vision of the eye is enhanced from  
2 an eye requiring a correction of greater than 6 diopters to an eye having at least 20/10  
3 vision.

1           **81.** The method of claim 57 in which the vision of the eye is enhanced from  
2 an eye requiring a correction of greater than 8 diopters to an eye having perfect vision.

1           **82.** The method of claim 57 in which the vision of the eye is enhanced from  
2 an eye requiring a correction of greater than 8 diopters to an eye having about 20/40  
3 vision.